Timber Supply Review

REVELSTOKE TIMBER SUPPLY AREA

Public Discussion Paper

September 2004

Photo: Mike Pirnik

BRITISH COLUMBIA

Ministry of Forests

Introduction

The British Columbia Forest Service regularly reviews the timber supply* in the timber supply areas* (TSAs) and tree farm licences* (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, if necessary, the chief forester will determine a new allowable annual cut* (AAC) for the Revelstoke TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. The chief forester can postpone a timber supply review for up to five more years if the AAC is not expected to change significantly. The chief forester may also set a new harvest level earlier than five years to deal with abnormal situations such as damage from severe wildfires or catastrophic insect infestations.

***Timber supply** - the amount of timber that is forecast to be available for harvesting over a specified time period, under a particular management regime.

***TSA** - an integrated resource management unit established in accordance with Section 7 of the Forest Act.

***TFL** - provides rights to harvest timber, and outlines responsibilities for forest management, in a particular area.

***AAC** - the rate at which timber is made available for harvesting (usually for a five-year period) in response to social, economic and environmental considerations.

Objectives of the Timber Supply Review are to:

Examine the relevant current forest management practices, public input, and economic, environmental and social factors;

Set a new AAC for the next five years; and

Identify information to be improved for future timber supply reviews.

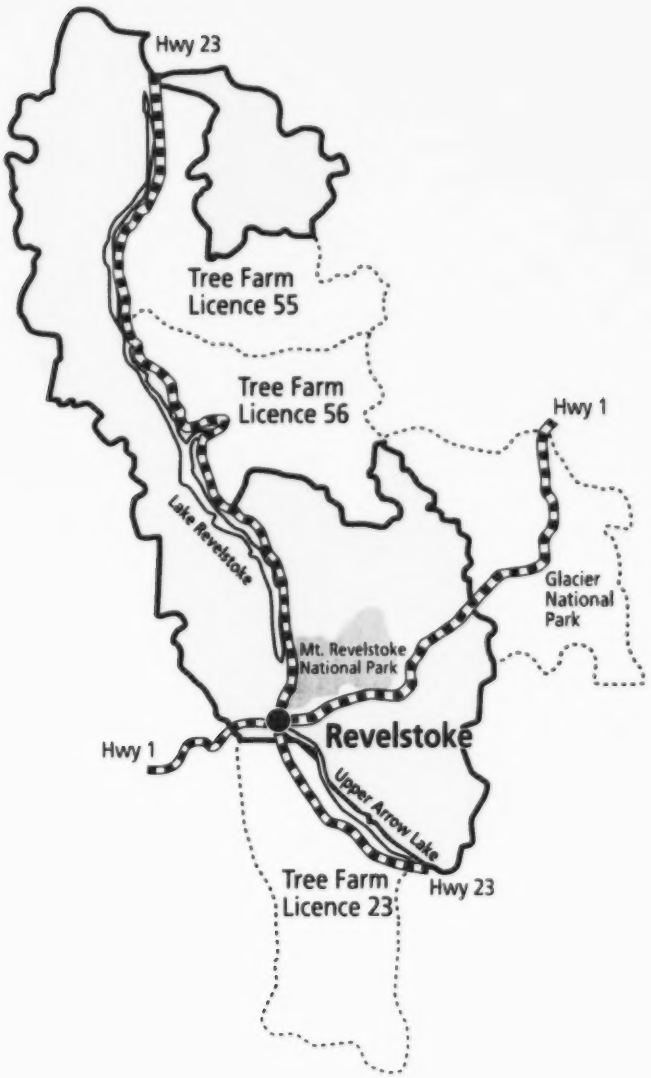
Timber Supply Review in the Revelstoke TSA

The British Columbia Forest Service has completed the *2004 Revelstoke TSA Analysis Report*, which is summarized in this discussion paper. This discussion paper is intended to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Revelstoke TSA, and to encourage them to provide comments during a 60-day public review period. **Public comments will be accepted until November 29, 2004.**

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester will explain his AAC determination in a rationale statement that will be available to the public. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA

The Revelstoke TSA is located in southeastern B.C. and is administered by the Columbia Forest District in Revelstoke. The TSA covers approximately 550,000 hectares, and includes the communities of Revelstoke and Mica Creek. More than 90 per cent of the 8,062 people in the TSA live in the town of Revelstoke.



Forest Land Resources

The forest land base in the Revelstoke TSA is rich in natural resources including timber, significant wildlife habitat, recreation and tourism amenities.

The timber supply area is rugged and mountainous, creating a diverse forested environment that provides habitat for a wide variety of wildlife species including black and grizzly bear, mountain caribou, moose, deer, elk and mountain goat. It has high recreational and tourism values because of its exceptional natural scenery, its proximity to national and provincial parks, and the presence of highway and rail transportation.

Under the Identified Wildlife Management Strategy 2004, Coeur d'Alene salamander, northern leopard frog, Lewis's woodpecker, short-eared owl, badger, grizzly bear, mountain caribou and wolverine are priority species for habitat management in the Columbia Forest District, which includes the Revelstoke TSA.

As Figure 1 shows, about 40 per cent of the TSA (223,000 hectares) is classified as productive forest land managed by the B.C. Forest Service, and about a third of this, or 78,000 hectares is considered available for harvesting. The remaining two-thirds is considered to be unavailable for timber harvesting at this time due primarily to economic or physical operability or environmental sensitivity.

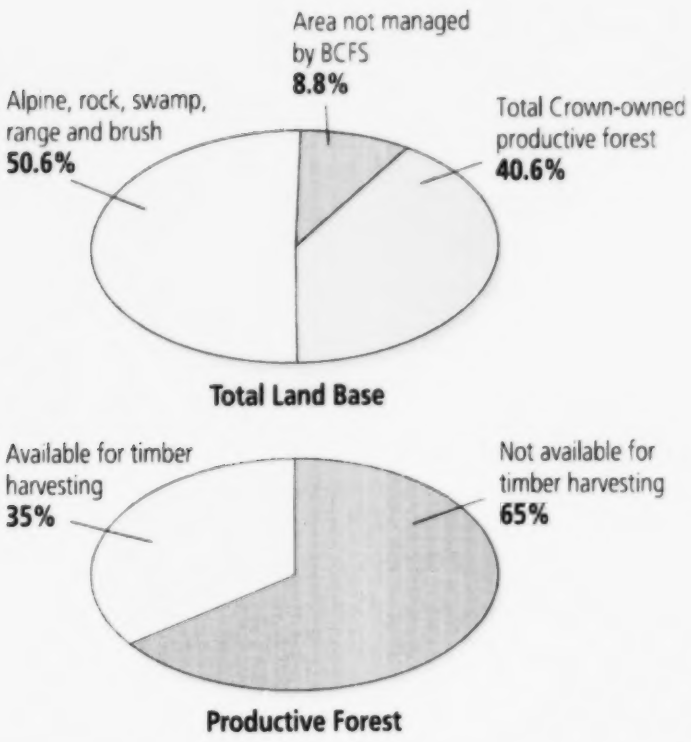


Figure 1. Breakdown of land base for Revelstoke TSA

First Nations

The Revelstoke TSA is within the traditional lands of the Shuswap Nation, the Ktunaxa/Kinbasket Nation and the Okanagan Nation. There are currently no First Nation reserves or communities within the TSA.

The Ktunaxa Kinbasket Tribal Council, of which the Shuswap Indian Band and Akisq'nuk First Nation are members, is currently negotiating a comprehensive treaty agreement, which addresses all of the substantive matters required to conclude a final treaty agreement for an area in the southeast corner of B.C., including the Revelstoke TSA.

Additionally, the Ktunaxa Kinbasket Tribal Council has been provided a written offer of a Forest and Range Agreement on behalf of its member bands. This agreement provides accommodation for the economic component of aboriginal interests that may be impacted by forestry decisions made within their asserted tradional territory for the term of the Forest and Range Agreement. FRA offer letters have been provided to Okanagan Nation Bands as well as three Shuswap Nation Bands – Adams Lake, Spallumcheen Band and Little Shuswap.

Land-use planning

In 1995, the B.C. government established the Revelstoke and Area Land Use Planning Minister's Advisory Committee (MAC) to provide advice to the Minister of Forests on the implementation of the land use planning in the Revelstoke area. The MAC, a detailed, community-based process involving many stakeholders in the Revelstoke area, submitted recommendations that were endorsed by government in April 2001. Although the recommendations are not yet legally binding, they are currently being implemented for key values such as the management of landscape-level biodiversity and management of important habitat for caribou in the Revelstoke TSA.

Current allowable annual cut

As part of the last timber supply review, the chief forester set the AAC in the Revelstoke TSA at 230,000 cubic metres, effective January 1, 2000, unchanged since 1995

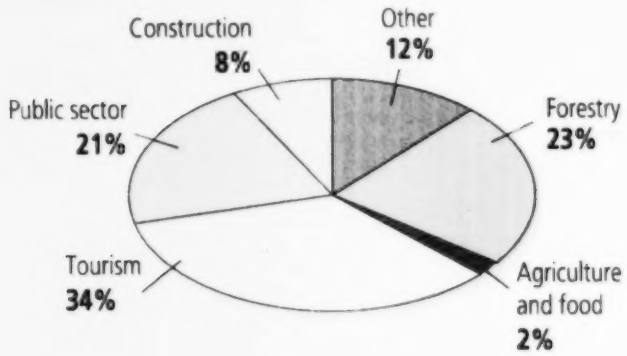


Figure 2. Basic sector employment, Columbia Forest District

Source: 2001 Economic Dependency Tables for Forest Districts, BC STATS.

Socio-economic profile

Regional economy

The forest industry is an important part of Revelstoke's economy. Economic dependency statistics developed by BC STATS indicate that the forest sector accounted for 23 per cent of the basic employment in 2001 for the Columbia Forest District which includes the Revelstoke TSA.

Tourism-related employment accounted for about 34 per cent and the public sector about 21 per cent of the total employment in the Columbia Forest District.

Employment income is a better indicator of a sector's contribution to the economy because it takes into account differences in seasonality and average wages. Although the tourism sector accounted for 34 per cent of basic employment in the TSA, it accounted for 15 per cent of basic income in 2001, reflecting the tendency for lower wages and more part-time employment. In comparison, forestry accounted for 23 per cent of basic employment and contributed 24 per cent of basic income, and the public sector at 21 per cent of basic employment contributed 17 per cent of basic income, reflecting higher average wages in these sectors.

The volume of timber harvested in the Revelstoke TSA from 1998 to 2002 averaged 227,192 cubic metres a year, very close to the AAC of 230,000 cubic metres.

Table 1 illustrates the contribution of the forest industry associated with the Revelstoke TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the actual average harvest level of 227,192 cubic metres a year (1998 - 2002).

Table 1. Summary of the Contribution of Forestry to the Local and Provincial Economy, Revelstoke TSA

	[illegible]	[illegible]
Direct employment (person-years)	**215**	**279**
Total employment (person-years)	**315**	**635**
Total employment income ($2002 millions/year)	**N/A**	**18.6**
Provincial gov't revenues ($2002 millions/year)	**N/A**	**3.2**

Timber supply forecasts

A computer model was used to project several possible timber supply forecasts for the next 250 years. The base case forecast illustrates the effect of current forest management practices on timber supply, using the best available information. The base case forecast is not a recommendation for an AAC, but rather it is one of many sources of information the chief forester will consider when setting the AAC.

Figure 3 shows the timber supply analysis base case and suggests that the current AAC of 230,000 could be maintained for two decades. In the third decade, the harvest level begins a series of declines until it reaches a mid-term harvest level of 165,000 cubic metres per year in decade 5. The mid-term harvest level represents the transition period between harvesting older stands to harvesting second-growth stands. After 14 decades, a long-term harvest level of 170,500 cubic metres is achieved, which is about 25 per cent lower than the current AAC.

Although the area of the TSA available for timber harvesting increased when compared to the previous (1998) timber supply analysis, this was offset by limitations on the rate of harvesting in specific areas to accommodate other values. As a result, the timber supply forecast is simi.. balance when compared e previous analysis. Major ch..nges in the assumptions used in the new analysis included updated mapping of the TSA boundaries, refinements to the criteria used to define the operable land base and updated estimates of future road requirements. In addition, the size of the area identified and managed for caribou habitat and other ungulates increased over the assumptions used in 1998.

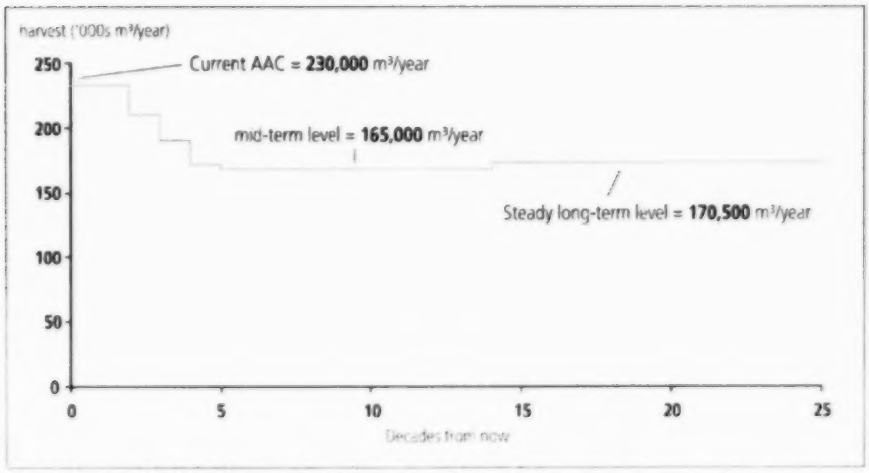


Figure 3. Base case timber supply forecast – Revelstoke TSA, 2004

The base case forecast models current practices, which are consistent with the Revelstoke and Area Land Use Planning process undertaken by the Minister's Advisory Committee. The forecast takes into account and protects forest values such as environmentally sensitive areas, habitat requirements of the Revelstoke caribou herd, deer and moose populations, landscape-level biodiversity and maintenance of scenic areas and domestic and community watersheds.

Sensitivity analyses: examining uncertainty

Because forests are complex and constantly changing, timber supply analysts assess how the timber supply might be affected by uncertainties in inventory information and management practices. These uncertainties are generally examined through what are called sensitivity analyses, which the chief forester will consider in determining an AAC. The sensitivity analyses are useful for assessing how uncertainties and risks, or any changes in information, might affect timber supply.

For the Revelstoke TSA, a number of sensitivity analyses were conducted to examine the stability of the timber supply in light of uncertainties. Fourkey sensitivity analyses are described below. For a complete listing and interpretation of sensitivity analyses, please refer to the *2004 Revelstoke Timber Supply Area Analysis Report*.

Uncertainty about the size of the timber harvesting land base

Sensitivity analyses were conducted to explore the impacts of uncertainty in the size of the timber harvesting land base. For example, a proposal exists to expand the Mount Mackenzie ski resort area, which makes up almost 4,800 hectares of the TSA. If the area were excluded, the timber harvesting land base would be about 2.5 per cent smaller. This land base

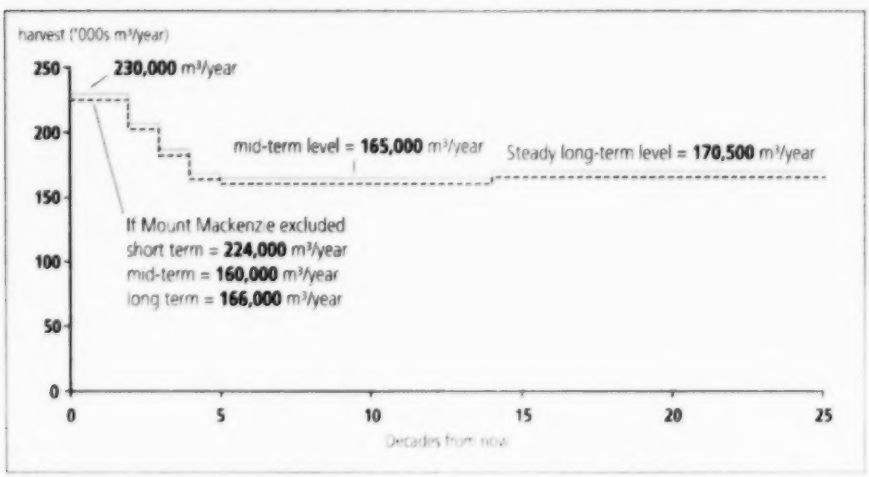


Figure 4. The effect on the harvest forecast of excluding the Mount Mackenzie resort proposal area from the timber harvesting land base.

exclusion could affect timber supply by about 2.5 per ent across the entire analysis horizon. Alternatively, the current AAC could be maintained in the short term, but mid- and long- term timber supply would be reduced by a greater amount.

Another concern has been the merchantability of some hemlock forests. Stands composed of a high proportion of hemlock species form up to 19 per cent of the timber harvesting land base in the Revelstoke TSA, and their merchantability is subject to some uncertainty. If stands comprising 60 per cent or more of hemlock by volume are excluded from the timber harvesting land base then timber supply is affected across all time horizons. An initial harvest level 27 per cent below that in the base case is the highest attainable. Mid-term timber supply (20 to 100 years from now) is reduced by 24 per cent and the long-term harvest level is 19 per cent lower.

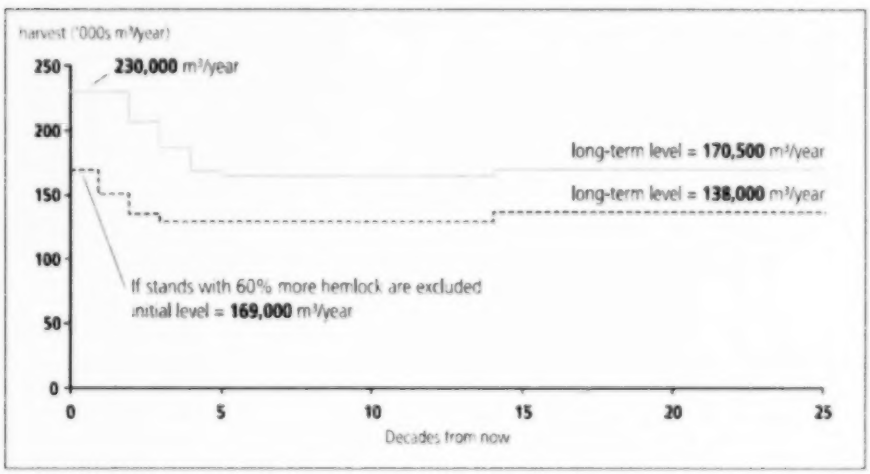


Figure 5. The effect on the harvest forecast of excluding high-proportion hemlock stands from the timber harvesting land base.

Uncertainty in the assumptions for managing mountain caribou habitat.

Management for caribou habitat is an important objective in the Revelstoke TSA. There has been significant scientific effort expended to identify habitat requirements of caribou and to develop management guidelines. The base case forecast included assumptions aimed at providing for critical mountain caribou habitat consistent with recommendations of the Revelstoke and Area Land Use Planning Minister's Advisory Committee.

Currently about 72,000 hectares of the productive forest land base within the TSA are identified as caribou habitat. This area includes almost a third of the timber harvesting land base in the TSA.

Current management for caribou habitat in the TSA is complex, and the implications of revising several current key assumptions were explored using sensitivity analysis. One of these is presented here. In this sensitivity analysis, forest cover requirements are applied to a larger operable caribou habitat area, and the amount of operable forest to be covered in stands over 140 years of age is increased from 40 per cent to 60 per cent. As well, all of the various areas modelled for habitat in the base case were grouped together and subjected to a common forest cover requirement. Timber supply was significantly reduced under this modified set of assumptions, with an initial harvest level about 18 per cent lower than that in the base case. Short-, mid- and long-term timber supply projections decreased by 22, 26 and 23 per cent, respectively under this scenario.

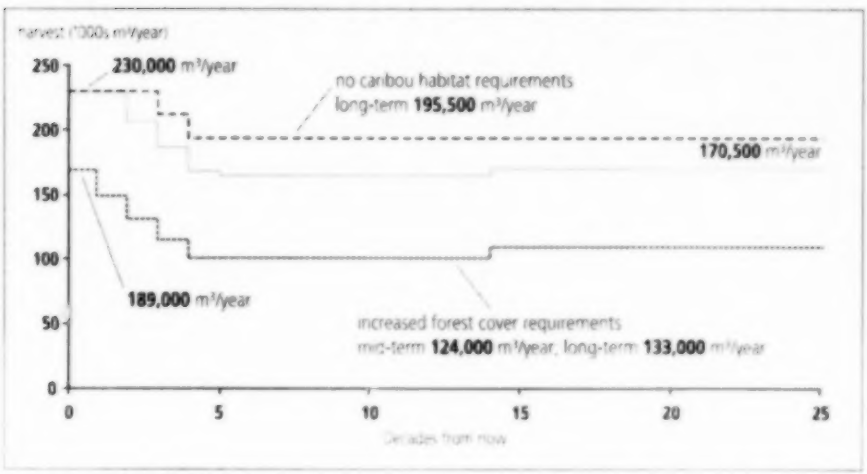


Figure 6. The effect on the harvest forecast if caribou habitat requirements are increased.

Uncertainty in management for visual quality.

About 18 per cent of the productive forest land in the TSA is managed for visual quality. Objectives for retention, partial retention and modification were modelled in the analysis, with limits placed on the amount of area that could be covered with young stands. Sensitivity analysis was used to evaluate the implications of increasing the rates of disturbance in the retention and partial retention areas, from the five and 15 per cent modelled in the base case, to 15 and 25 per cent, respectively. The results showed that mid- and long-term timber supplies could be increased by about seven and eight per cent if these higher rates of disturbance were considered acceptable.

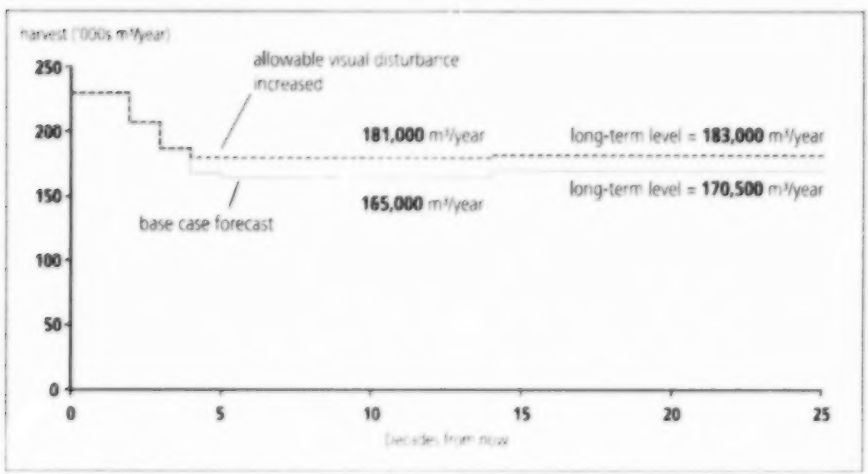


Figure 7. The effect on the harvest forecast if higher rates of disturbance were acceptable.

Implications of changes in the AAC

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The current AAC of 230,000 cubic metres, if fully harvested and processed, can support an estimated 215 person-years of direct forestry employment and another 100 person-years of indirect employment.

The local employment income associated with this direct, indirect and induced employment is projected to be about $9.9 million a year. The provincial government could collect about $3.3 million a year, depending on the level of harvest, in stumpage and related payments, other industry taxes and provincial income taxes.

Your input is needed

Public input is a vital part of the timber supply review process. Feedback is welcomed on any aspect of this discussion paper, the 2004 Revelstoke TSA Analysis Report and other issues related to the timber supply in the Revelstoke TSA. Forest Service staff would be pleased to answer questions to help you prepare your response. Please send your comments to the forest district manager at the address below. **Your comments will be accepted until November 29, 2004.**

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the Freedom of Information and Protection of Privacy Act and may be made public. If the responses are made public, personal identifiers such as phone numbers and addresses (not names) will be removed before the responses are released.

For more information contact and/or mail your comments to:

District Manager
Columbia Forest District
Box 9158 RPO#3
Revelstoke, BC V0E 3K0

(or physical address: 1761 Big Eddy Rd. in Revelstoke)

Phone: (250) 837-7611,
Fax: (250) 837-7626

or

Regional Executive Director
Southern Interior Forest Region
515 Columbia Street,
Kamloops, BC V2C 2T7

Phone: (250) 828-4131,
Fax: (250) 828-4154

Or electronically mail to Ken Gibson:
Ken.Gibson@gems5.gov.bc.ca

Visit our website at www.for.gov.bc.ca/hts

Background Information Regarding TSR

The Chief Forester's Responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the *Forest Act*, Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
   - the composition of the forest and its expected rate of growth
   - the time that it will take the forest to become re-established
   - silviculture treatments, including reforestation
   - standards of timber utilization
   - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
4. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be measured and analyzed – others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.

BRITISH
COLUMBIA

Ministry of Forests